Risk Assessment and Soil Sampling Resources for HUD

General Superfund Guidance Documents:

Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions: This document provides guidance on how to use the baseline risk assessment to make risk management decisions such as determining whether remedial action under CERCLA Sections 104 or 106 is necessary. Clarifies the use of the baseline risk assessment in selecting appropriate remedies under CERCLA Section 121, promotes consistency in preparing site-specific risk assessments, and helps ensure that appropriate documentation from the baseline risk assessment is included in Superfund remedy selection documents.

Risk Assessment Guidance for Superfund (RAGS), Human Health Evaluation, Part A: This document provides guidance on the human health evaluation activities that are conducted during the baseline risk assessment - the first step of the Remedial Investigation/Feasibilty Study (RI/FS). The baseline risk assessment is an analysis of the potential adverse health effects (current or future) caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases (i.e., under an assumption of no action). The baseline risk assessment contributes to the site characterization and subsequent development, evaluation, and selection of appropriate response alternatives. The results of the baseline risk assessment are used to help determine whether additional response action is necessary at the site, modify preliminary remediation goals, help support selection of the "no- action" remedial alternative, where appropriate, and document the magnitude of risk at a site, and the primary causes of that risk.

There are additional volumes of RAGS available – parts B through F – covering later stages of the Superfund process and more specific topics (dermal exposure, inhalation exposure). These are available online at https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part

Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA: The remedial investigation and feasibility study (RI/FS) process as outlined in this guidance represents the methodology that the Superfund program has established for characterizing the nature and extent of risks posed by uncontrolled hazardous waste sites and for evaluating potential remedial options.

Lead Specific Documents:

Superfund Lead-Contaminated Residential Sites Handbook: *This document is somewhat out of date, and we are currently preparing a revision, but it provides a good starting point and valuable information about sampling.* This document provides comprehensive reference for project managers addressing lead-contaminated residential sites. The handbook lays out only the minimum considerations and promotes national consistency in characterizing and cleaning up lead-contaminated residential sites. Contents of the handbook include aspects of the remediation process from initial research on the nature and extent of site contamination through cleanup level selection, prevention of recontamination, and community health education programs. This handbook is not policy or guidance. Users are encouraged to refer to appropriate Agency guidance and policy.

Recommendations for Sieving Soil and Dust Samples at Lead Sites for Assessment of Incidental Ingestion: This document provides recommendations and protocols for the collection, preparation and analysis of lead in soil and dust for use in lead modeling, and should be consulted when using the IEUBK model or the ALM.

Integrated Exposure Uptake Biokinetic (IEUBK) Model: The IEUBK model is a model developed by Superfund to predict the risk of elevated blood lead levels in children that are exposed to environmental lead. The model predicts the risk (probability) that a child exposed to specified media specific lead concentrations will have blood lead levels greater than a target threshold (usually 5-10 $\mu g/dl$), or the cleanup levels to needed to meet that risk threshold.

- Overview of the IEUBK Model for Lead in Children
- Download the software and user's manual
- Estimating the Soil Lead Concentration Term for the IEUBK Model
- IEUBK training slides
- YouTube Training video for module 1 and module 2

X-Ray Fluorescence (XRF): XRF is a commonly used field portable device used to measure lead concentrations in soil in real time. Superfund and the Lead Technical Review Workgroup (TRW) have developed some documents to help ensure accurate sample collection and analysis:

- XRF (x-ray fluorescence) Answers to Frequently Asked Questions (PDF)
- XRF technologies for Measuring Trace Elements in Soil and Sediments (PDF)